

REMARKS/ARGUMENTS

Claims 1-30 are pending in the application. Applicants have amended claims 1, 12, 16 and 27. Claims 12 and 27 were amended to correct minor typographical errors. Applicants believe that this response addresses the Examiner's rejection and that any changes do not introduce new matter into the specification, limit the scope of the claims or result in any prosecution history estoppel.

CLAIM REJECTIONS:

35 USC § 102(e)

The Examiner has rejected original claims 1-7, 9-22, and 24-30 under 35 USC § 102(e) as being anticipated by Prasher et al. (U.S. Patent No. 6,903,929 B2; hereinafter "Prasher"). Applicants believe that claims 1 and 16 as amended, and consequently all rejected dependent claims 2-7, 9-15, 17-22, and 24-30, are not anticipated by Prasher.

Claim 1 as amended recites an apparatus including an integrated circuit (IC) die and a thermal mass coupled to the IC die, wherein the thermal mass comprises **a heat exchanger including a plurality of microchannel layers**. Claim 16 as amended recites similar limitations.

Prasher appears to teach, for example in Fig. 5A, an IC package including "dual microchannel heat exchangers" where the "upper portion of the package includes a first integrated heat exchanger" having microchannels (see Prasher; Figs. 3a-b and 5) and "wherein microchannels corresponding to a second microchannel heat exchanger are formed in a flip-chip substrate." (Prasher; col 2, lines 52-57). Thus, Fig. 5a of Prasher seems to teach about two distinct microchannel heat exchangers, items 300 and 502A, each one having only a single layer of microchannels, items 304 and 504 respectively. Hence, Applicants assert that Prasher fails to disclose a single heat exchanger including a plurality of microchannel layers as claimed and therefore does not anticipate any of the claims pending in the application.

35 USC § 103(a)

The Examiner rejected claims 6-8 and 21-23 under 35 USC § 103(a) as being unpatentable over Prasher in view of Gros (US Patent 4,759,874; hereinafter "Gros"). In response, Applicants have filed a terminal disclaimer with respect to Prasher in accordance with 37 CFR § 1.321(c). Applicants believe that this response overcomes the rejection.

Obviousness-Type Double Patenting

The Examiner rejected claims 1-7, 9-22, and 24-30 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6,934,154 B2 or over claims 1-28 of Prasher. The Examiner has also rejected claims 6-8 and 21-23 under obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6,934,154 B2 or over claims 1-28 of Prasher further in view of Gros. In response, Applicants have filed a terminal disclaimer with respect to both U.S. Patent No. 6,934,154 B2 and Prasher in accordance with 37 CFR § 1.321(c). Applicants believe that the terminal disclaimer overcomes both double patenting rejections.

CONCLUSION

In view of the foregoing, it is respectfully asserted that all of the claims pending in this patent application are in condition for allowance.

Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #02-2666.

If the Examiner has any questions, he is invited to contact the undersigned at (503) 264-6473. Reconsideration of this patent application and early allowance of all the claims is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'R. Hinchliffe', with a long horizontal flourish extending to the right.

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